

## Demonstration programmer board based on the STPM01

Data Brief

### Features

- Full compatible with the STPM01 energy meter and with the appropriate manager software
- Integrated system designed to provide a complete, ready-to-use energy meter
- High-end solution for power metering based on the STR710 Microcontroller with embedded RTC
- External memory interface (EMI) ready to drive 1 Mbyte of on-board SRAM.
- On-board optical insulated serial line
- On-board charge pump
- Access to the STPM01 device registers, using a dedicated SPI bus interface



### Applications

- Demonstration purposes:
  - connecting the demonstration board to an AC power source and changing all the settings parameters through the GUI interface and the hardware programmer/reader board
- To evaluate and develop a custom application

Moreover, the on-board charge pump allows burning the STPM01 energy meter ASSP device registers.

Access to the STPM01 device registers is ensured using a dedicated SPI bus interface. The STPM01 programmer kit demonstrates how effectively the STPM01 can be used in real-world energy meter applications and it helps the user to develop his own application.

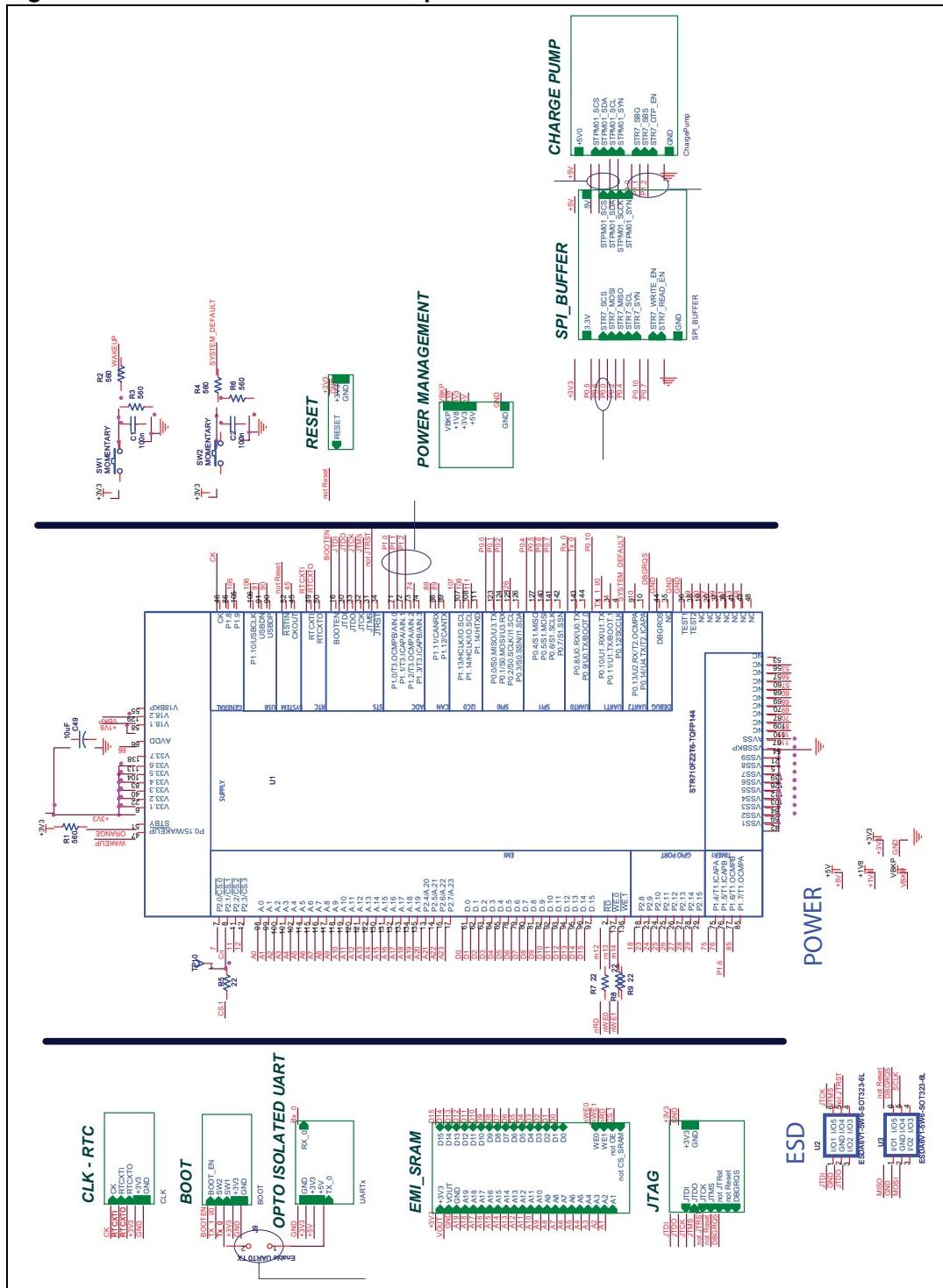
### Description

The STEVAL-IPE005V1 demonstration board works in conjunction with the STPM01 energy meter ASSP device and with the STPM01 manager software. It is an integrated system designed to provide the user with a complete, ready-to-use energy meter application. This board is a high-end solution for power metering based on the STR710 microcontroller with an embedded RTC and an external memory interface (EMI) ready to drive 1Mbyte of on-board SRAM. The demonstration board also integrates an on-board optical insulated serial line allowing isolation of the board ground reference in order to avoid propagation of over-voltage on the PC side.

## 1 Demonstration board schematics

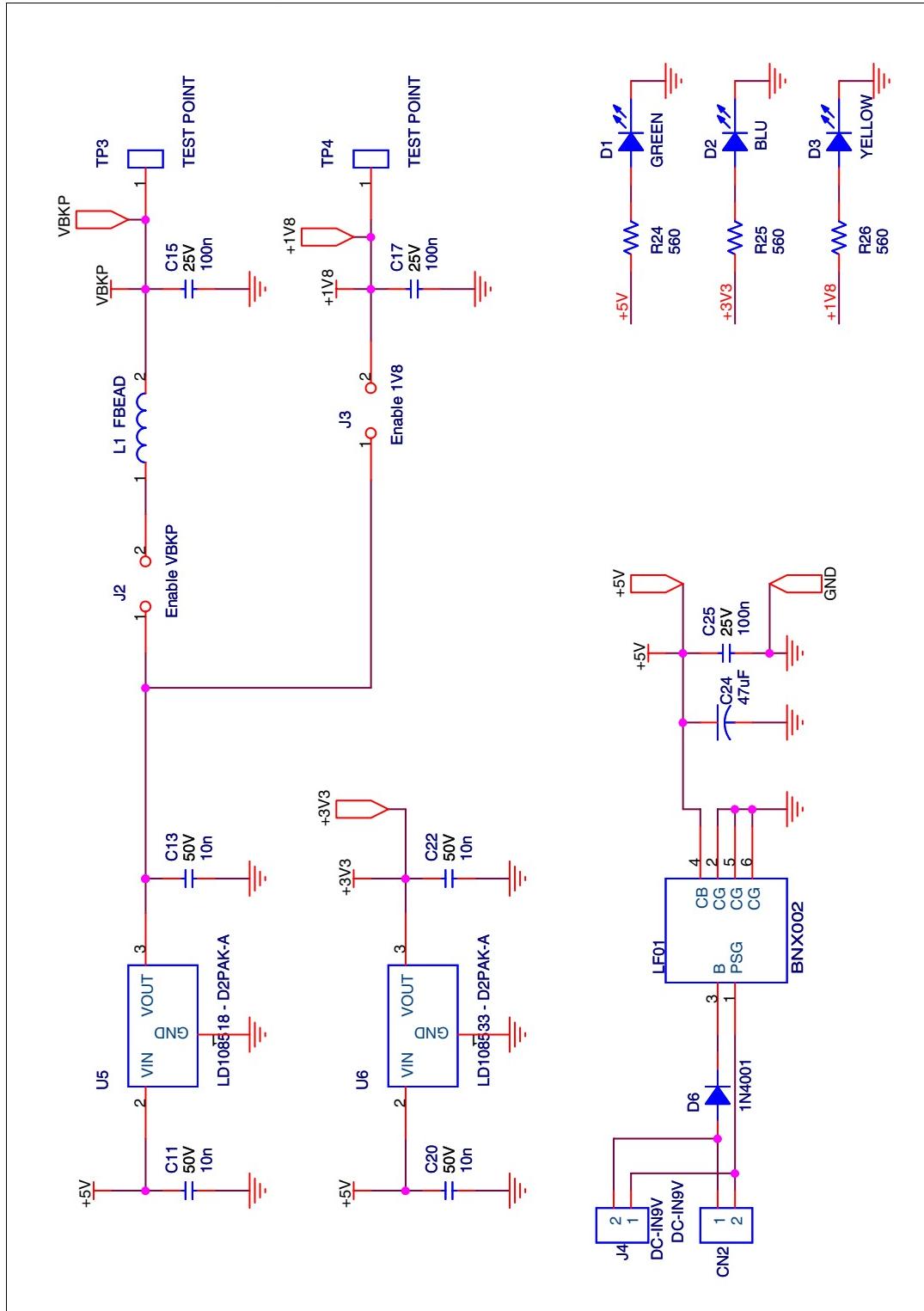
## 1.1 Microcontroller and main parts schematic

**Figure 1.** Microcontroller and main parts schematic



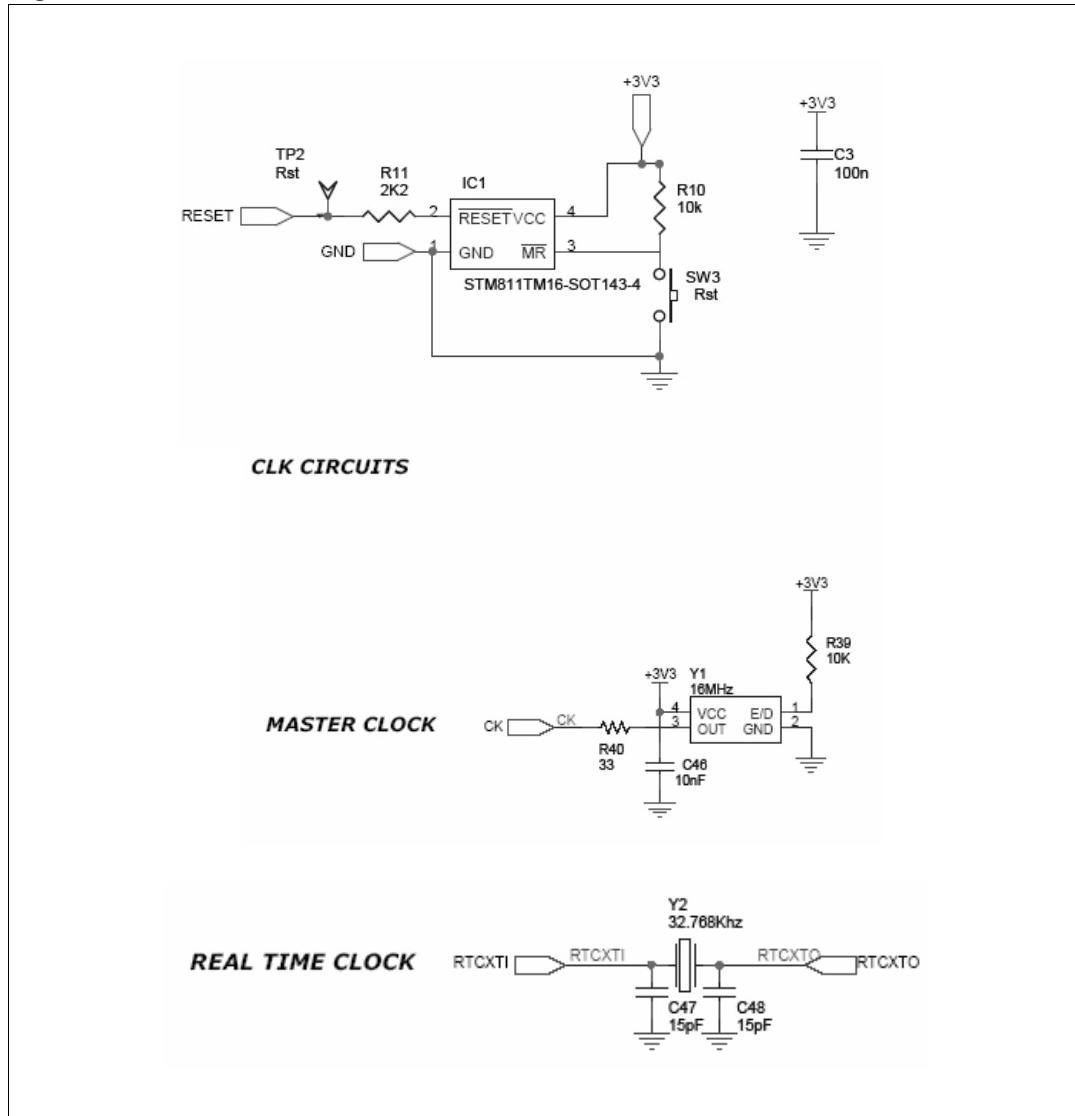
## 1.2 Power management

Figure 2. Power management schematic



## 1.3 Reset and clock circuits

Figure 3. Reset and clock circuits



## 1.4 Boot management and Jtag circuit

Figure 4. Boot management and Jtag circuits

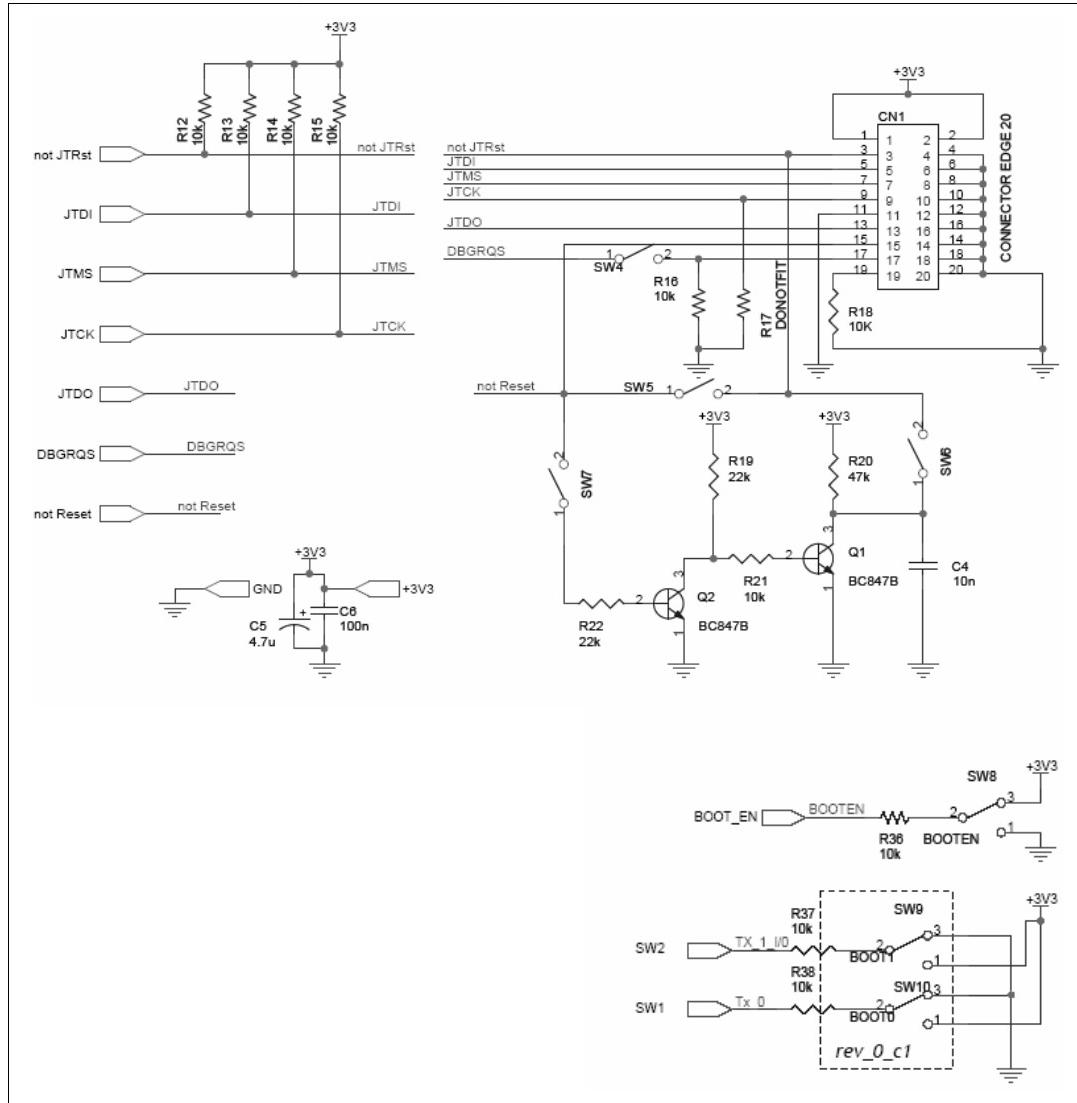
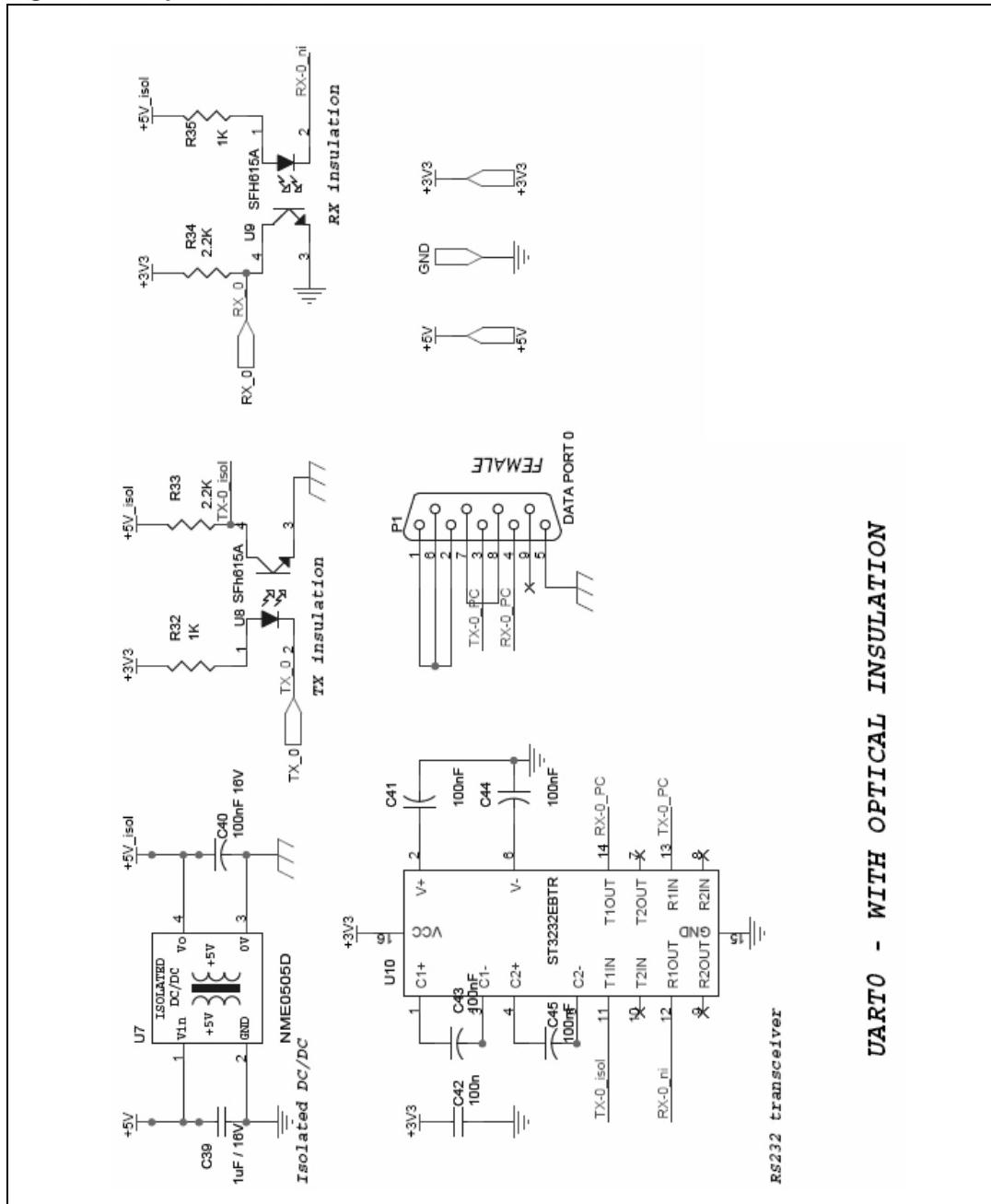


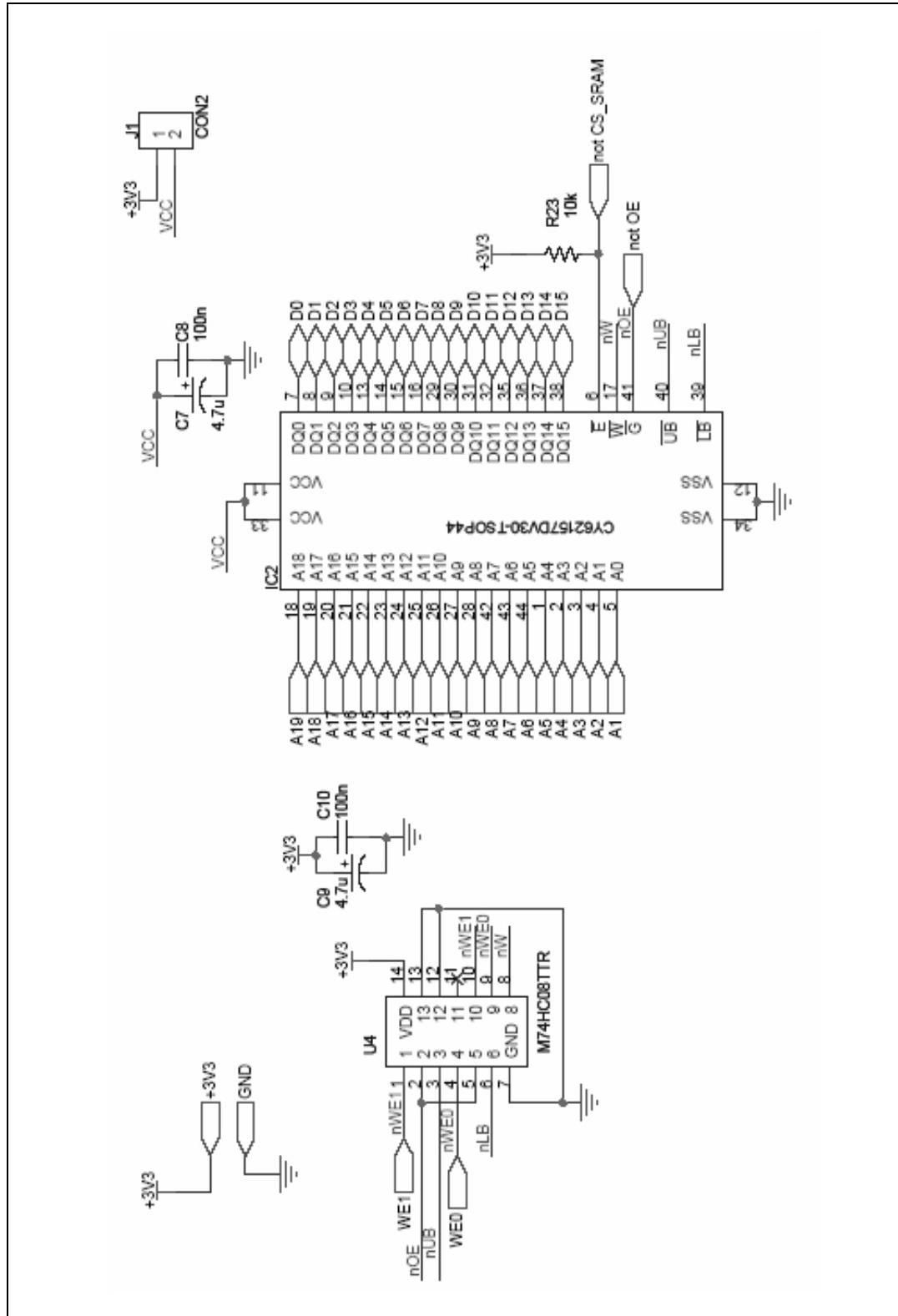
Figure 5. Opto-isolated UART



UART0 - WITH OPTICAL INSULATION

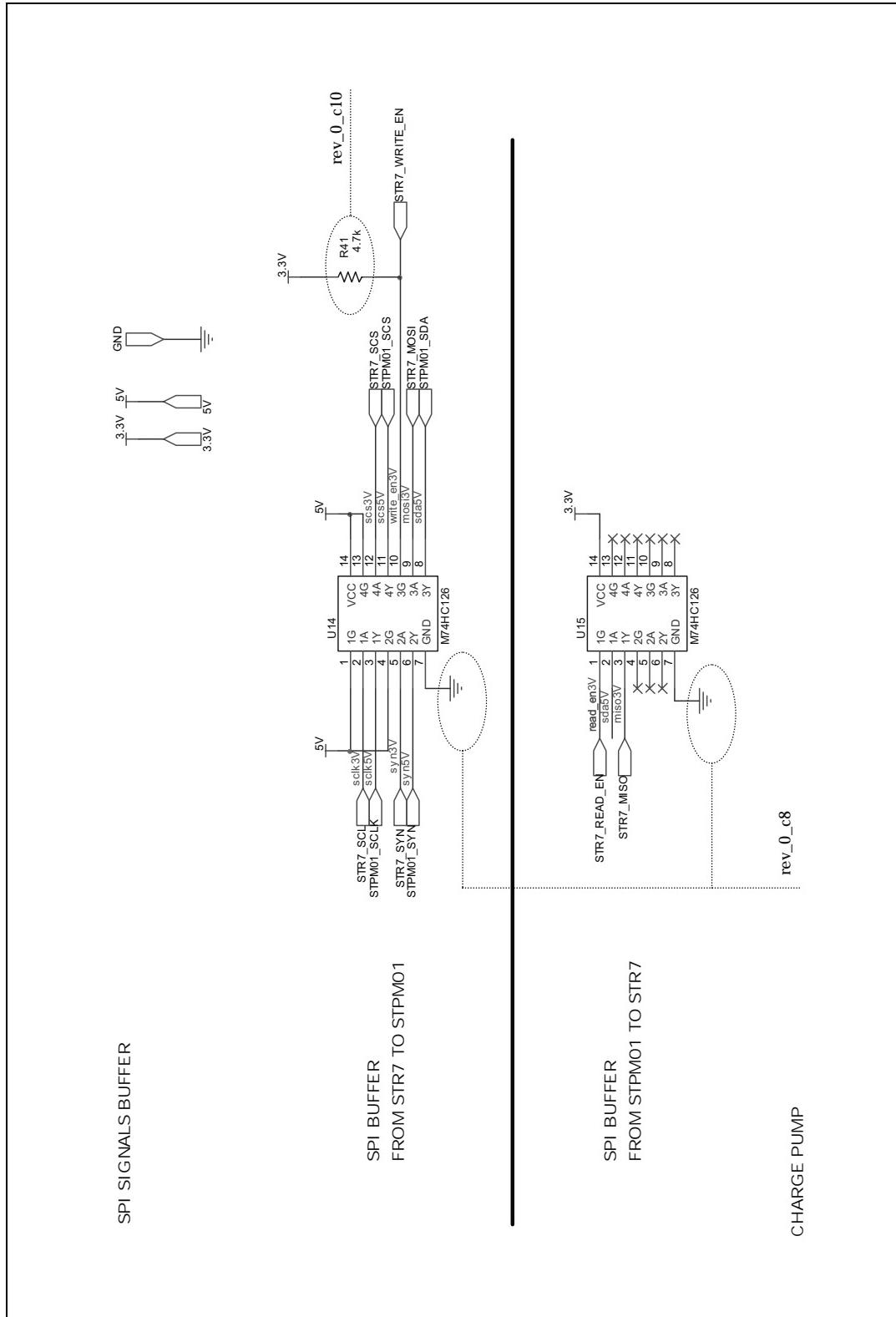
## 1.5 External RAM memory

**Figure 6. External RAM memory**



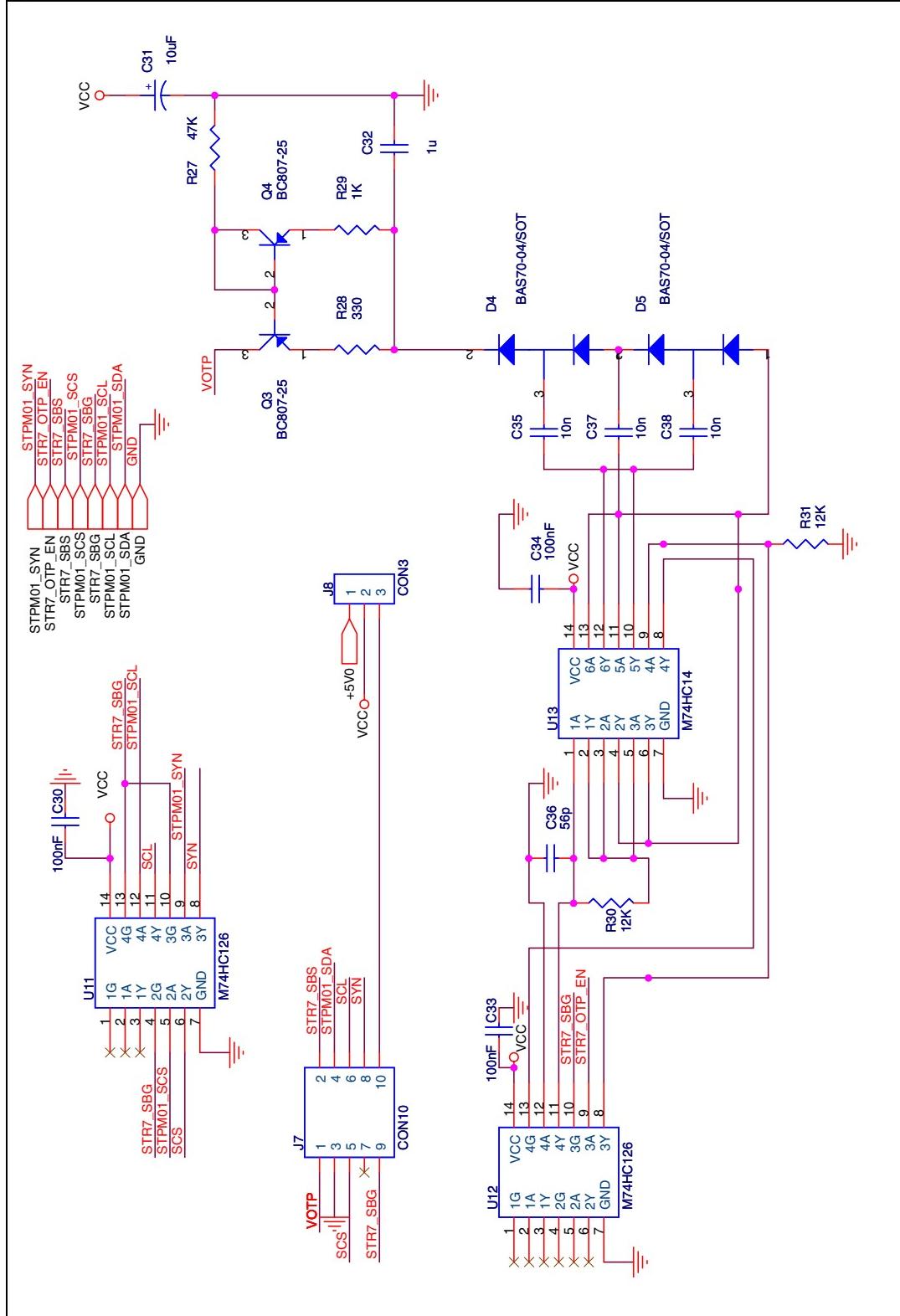
## 1.6 SPI signals buffering

**Figure 7. SPI signals buffering**



## 1.7 Charge pump and SPI connector

Figure 8. Charge pump and SPI connect



## 2 Revision history

**Table 1. Document revision history**

Date	Revision	Changes
24-Nov-2008	1	Initial release.

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